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FACSIMILE COVER SHEET

TO: Examiner: **C. PARSONS** – ART UNIT: **2613** - United States Patent and Trademark Office

CLIENT NAME/NUMBER: 53137

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FROM: Paul J. Ditmyer, Esq. **DATE:** November 10, 2003

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COMMENTS/INSTRUCTIONS:

Please see attached Reply Brief in triplicate in response to the Examiner's Answer of September 10, 2003 for U.S. Patent Application Serial No. 09/390,554.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF APPEALS

In re Patent Application of:
PAU ET AL.

Serial No. 09/390,554

Filing Date: SEPTEMBER 3, 1999

For: METHOD AND SCALABLE ARCHITECTURE FOR PARALLEL CALCULATION OF THE DCT OF BLOCKS OF PIXELS OF DIFFERENT SIZES AND COMPRESSION THROUGH FRACTAL CODING

Examiner: C. PARSONS

Art Unit: 2613

Attorney Docket No. 53137

Telefacsimile No. 703-872-9315

APPELLANTS' REPLY BRIEF

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Herewith is Appellant's Reply Brief that is submitted in triplicate in reply to the Examiner's Answer to Appellant's Appeal Brief. If any additional extensions and/or fees are required, authorization is given to charge Deposit Account No. 01-0484.

I. Further Argument

In response to the Examiner's Answer, Appellants' again point out that conventionally, e.g. as disclosed in the Background section of the present application or in the Zhao article, the calculation of the discrete cosine transform (DCT) is carried out on blocks or matrices of pixels, in which a whole picture is subdivided for processing purposes. And, as in Zhao, the use of such a conventional system and process imposes a pre-definition of

the dimensions of the blocks of pixels into which a picture is subdivided to meet processing requisites.

Indeed, DCT by definition is a 2D Fourier transform where the basis functions are cosine operations as discussed, for example, in "Vector Quantization and Signal Compression" by A. Gersho and R. Gray. The DCT matrix is kxk where k is any positive integer as is well know from the Fourier Transform defined by Fourier during the 19th century. Contrary to the Examiner's assertions, and the basis for his rejection, it is not true that the formula for a 2x2 DCT can be used for 4x4 DCT evaluation. Cosine is not a linear function and the coefficients for a 2x2 DCT cannot be the same or even a linear combination of the coefficients for a 4x4 DCT.

The present invention is directed to a method and a hardware architecture for calculating the DCT on a plurality of blocks of pixels, in parallel, and which provides for the scalability of the size of the blocks of pixels.

On page 4 and 5 of the Examiner's Answer, the Examiner asserts that "scalability" in Zhao can be inferred or is inherent. As the Examiner and Board are aware, the fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. In relying upon the theory of inherency, the Examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic **necessarily** flows from the teachings of the applied prior art. As discussed above, not only has the Examiner failed to provide a basis in fact and/or technical reasoning to reasonably support the determination that "scalability" necessarily flows from

the teachings of Zhao, but Appellants have explained how the system and process of Zhao is not and cannot be scalable.

It is Appellants who have discovered a method and a hardware architecture for calculating the DCT on a plurality of blocks of pixels, in parallel, and which provides for the scalability of the size of the blocks of pixels.

Furthermore, on page 5 of the Examiner's Answer, the Examiner, citing Gottschalk v. Benson, has determined that mathematical formulas are not patentable. However, without discussing the historical or presently controlling case law regarding patentable subject matter, it should be sufficient for Appellants to point out again that the present invention, as disclosed on 35 pages of detailed description referring to 23 schematic diagrams, is directed a method and a hardware architecture for the parallel calculation of the DCT on a plurality of scalable blocks of pixels. In other words, contrary to the Examiner's position, Appellants are not "simply deriving a formula."

Lastly, Appellants again acknowledge that Ericsson teaches the processing of images by performing certain processing algorithms in parallel. However, as discussed in previous responses, nothing in Ericsson et al. is suggestive of the method and relative architecture for parallel calculation of the DCT of scalable blocks of pixels of different size and compression characteristics as in the present invention. In other words, Appellants have set forth that neither of the references discloses, suggests or even hints at the scalability of the size of a plurality of blocks of pixels in the calculation of the DCT. Therefore, the combination of references relied upon by the

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Examiner, even if obvious, cannot meet the features of the invention as claimed.

II. Conclusion

In view of Appellants' reply to the Examiner's arguments, it is respectfully submitted that all of the claims are patentable over the prior art. Appellants, therefore, respectfully request that the Board of Patent Appeals and Interferences reverse the earlier unfavorable decision of the Examiner.

Respectfully submitted,

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CERTIFICATE OF FACSIMILE

I hereby certify that this correspondence is being sent via facsimile No. **703-872-9315** to: Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450, on this 10th day of November, 2003.